

HEGGEL® VE 640

Synthetic Epoxy Novolac Vinylester Mortar

You Build, We Protect!

Description:

HEGGEL VE 640 is a multi-component synthetic resin mortar made from a blend of Epoxy Novolac Vinyl-Ester resin and a quartz-based filler. Its primary purpose is facilitating easy bedding and jointing of acid-resistant tiles and bricks. For applications demanding electrical conductivity or hydrofluoric acid resistance, **HEGGEL VE 641** is the recommended choice.

Characteristics:

- Excellent bonding with ceramic tiles and bricks
- Exceptional resistance to acids, alkalis, solvents, and oxidizing agents
- Temperature resistance up to 120°C (subject to the specific chemical application)
- Suitable for both indoor and outdoor use

Applications:

HEGGEL VE 640 is designed as a bedding and jointing mortar for tile and brick lining of apparatus and process vessels, as well as industrial facilities, chemical warehouses, and production zones demanding extensive and versatile chemical resistance.

Chemical Resistance:

Information on the chemical resistance is available on request.

Pot Life (20°C):

Product	Time
HEGGEL VE 640	Approx. 30 - 60 min

Note: Depending on the actual ambient temperature, the pot life may vary. Higher temperatures could shorten the pot life, while lower temperatures would prolong it. For further information, please consult with HEGGEL!

Curing (20°C):

Load Capacity	Time
Accessible / Walkable	At least 16 hrs
Chemical and Mechanical Load	At least 7 days

Technical Data:

Title	DIN	ASTM	Value	Unit
Density	DIN EN ISO 1183-1	ASTM D792	2.4	g/cm ³
Flexural Strength*	DIN EN ISO 178	ASTM C580	42	MPa
Compressive Strength*	DIN EN ISO 604	ASTM C579	110	MPa
Tensile Strength*	DIN EN ISO 527	-	18	MPa
Modulus of Elasticity*	DIN EN ISO 178	ASTM C580	6.0 x 10 ³	MPa
Therm. Coefficient of Linear Expansion	ISO 11359-2	ASTM C531	8.0 x 10 ⁻⁵	1/K
Thermal Conductivity	ISO DIN 22007	-	1	W/mK

* Mean value, determined on annealed samples

Packaging:

The products are supplied in the following standard package sizes:

Product	Size	Package
HEGGEL VE 640 Solution	25 kg	Hobbock
HEGGEL VE 640 Powder	25 kg	Bag
HEGGEL FRP 343 Accelerator	2.5 kg	Can
HEGGEL FRP 343 Hardener	1 kg	Bottle

Storage:

The products must be stored in a cool and dry place, away from direct sunlight. At the indicated storage temperatures, the shelf life of the products is at least the below mentioned periods:

Product	Temperature	Shelf Life
HEGGEL VE 640 Solution	20°C	6 Months
HEGGEL VE 640 Powder	20°C	24 Months
HEGGEL FRP 343 Accelerator	20°C	24 Months
HEGGEL FRP 343 Hardener	20°C	12 Months

If the shelf life is passed, the materials must be tested prior to use. Higher temperatures by storage and transport would reduce the shelf life, whereas lower temperatures would extend the minimum shelf life. The containers are to be kept closed tightly. All liquid products must be stored in frost-proof conditions.

1. Surface Preparation

As a rule, the mortar should be built up on one of the HEGGEL linings or coatings; in the case that such a sealing layer is not applied, then at least a suitable primer with adequate sprinkling must be used. Any unevenness in the substrate must already be levelled out.

1.1. Carbon Steel

All contaminants such as those which are not visible but detectable, have to be removed in accordance with DIN Fachbericht # 28 and EN ISO 8502. Ferrite steel surfaces must be blasted to "Near White Metal" in accordance with EN ISO 12944-4. A standard preparation degree of SA 2½ (SSPC SP-10; NACE #2) as specified in EN ISO 8501-1 is required.

1.2. Concrete

Appropriate action must be taken to prepare the concrete surfaces; they must be dry and dust-free and free of contaminants such as oil or grease. The concrete must have a minimum tensile strength of 1.5 N/mm². The residual moisture content shall not exceed 4%.

2. Environmental Conditions

The specified environmental conditions must be complied with during surface preparation and tile/brick lining. During the application, the substrate must be kept completely dry. No moisture (condensate, mist, etc.) may get onto the surfaces that are to be protected. The construction site has to be protected against direct sunlight and draught.

Environmental Conditions	Value
Relative humidity	≤ 80%
Surface / material / air temperature	≥ +10°C up to +30°C
Optimum processing temperature	+20°C
Dew point distance	min 3°C (At a relative humidity of above 70 % at least 5°C)

Elevated or decreased temperatures could affect the working time and consistency of the mixture. As a result, consumption and application performance may vary.

3. Application Tools

- Drilling machine
- Trowel
- Anchor stirrer
- Measuring cup
- Mortar mixer
- Mixing vessel
- Joint iron
- Joint board
- Joint injector (rubber chip)
- Scale

4. Mixing Instruction

Warning: Strictly follow the prescribed mixing sequence for Vinylester systems to prevent potential explosion hazards.

HEGGEL VE 640	Parts by Weight
HEGGEL VE 640 Solution	100
HEGGEL FRP 343 Accelerator	2.5
HEGGEL FRP 343 Hardener	2.5
HEGGEL VE 640 Powder	580

Before use or partial withdrawal, vigorously stir the solution using an anchor stirrer at a speed of 300 - 500 rpm, ensuring thorough blending extending to the vessel's wall and bottom. Accurately measure or weigh the liquid components. Start by stirring the **HEGGEL VE 640 Solution** and transferring it into the mixing vessel. Introduce the **HEGGEL FRP 343 Accelerator**, gently stirring with an anchor stirrer (300 - 500 rpm) until achieving a consistent solution. Add the **HEGGEL FRP 343 Hardener** and continue mixing meticulously until uniformity is achieved. Maintain thorough mixing by moving the stirrer along the vessel's wall and bottom. Precisely measure or weigh the **HEGGEL VE 640 Powder** and gradually incorporate them into the solution, ensuring careful blending until a homogeneous lump-free mixture is achieved. Smaller quantities can be manually mixed. To ensure optimal performance, refrain from using the mortar after its designated working time has elapsed.

5. Application

HEGGEL VE 640 is suitable for both the full-joint as well as hollow-joint installation of tiles/bricks. Bedding joint is applied to the substrate in a thickness of 4 - 7 mm. When ceramic tiles/bricks are being installed, field sizes of approx. 3 x 3 m must be considered, particularly where the substrates are flexible. After conclusion of the initial curing phase, the dividing joints between the fields are sealed (normally 24 to 48 hours).

Apply the mortar to two side edges of the tiles/ bricks for full-joint installation, then place the tile/brick in position.

Remove the mortar bead with the trowel and smooth out the joint. For a hollow joint installation, the butt joint shall remain free and be filled later.

The jointing can be done subsequently with a joint injector, joint iron or joint board. To compress the joint, excess material should be pressed with the joint iron into the joint. The remaining material should be removed with the trowel.

When HEGGEL Mortar is being used for hollow-joint installation of tiles, the bedding joint must be cured and dry again. There should be a rectangular cross-section in the open joint (depth: >15 mm, width: 5 - 8 mm). The sides of tiles must be free of mortar and the joints must be clean.

Extra consideration should be given to ensure that the application is free of voids. In order to obtain visually flawless surfaces after jointing, the use of **HEGGEL protective varnish**, hard wax or clinker oil is recommended, depending on the tiles used. Check the use on a test area in advance.

6. Consumption

Required Mortar for full-length installation: (Bed joint 5 mm, Joint width 7 mm)

Material	Size (mm)	Coverage (kg/m ²)
Bricks	240 x 115 x 80	Approx. 31.20
Bricks	240 x 115 x 65	Approx. 27.60
Tiles	240 x 115 x 40	Approx. 22.80
Tiles	240 x 115 x 20	Approx. 18.00
Bed joint	4 - 7 mm	
Joint width	5 - 8 mm	

Note: Values are approximate requirements.

7. Cleaning

Any tools that are contaminated with uncured material can be cleaned using **HEGGEL Cleaner**. Only clean in areas with good ventilation and observe safety measures.

8. Safety Measures

The material safety data sheets of the individual components, the safety instructions on the packing (label) as well as the legal requirements for handling hazardous materials must be observed.

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All information contained herein is based on the current state of our knowledge and practical experience at the time of release. Therefore, please make sure that this is the latest edition of the Technical Data Sheet. All data are only intended as a guideline for informational purposes and do not constitute a legally-binding warranty of the suitability for a certain purpose of use, due to its dependence on site conditions and possible processing, use and applications. All information contained in this technical datasheet is subject to change without notice.

HEGGEL GmbH

Huttropstr. 60
45138 Essen
Germany

Tel: +49 201 17003 270

Fax: +49 201 17003 277

E-Mail: info@heggel.de

Web: www.heggel.de